

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF INDUSTRIAL ACCIDENTS**

**TREATMENT GUIDELINES
REVISED EFFECTIVE MARCH 13, 2004**

GUIDELINE NUMBER 1 - CARPAL TUNNEL SYNDROME (CTS)

I. Introduction:

The attached clinical guideline has been created to consistently improve health care services provided to injured workers by outlining the appropriate information gathering and decision making processes involved in the management of CTS in adults, **that is determined to be work related**. The guideline is a consensus document, and should be used as a tool to guide various multi-disciplinary health care practitioners to provide quality care to injured workers. The guideline is not intended to substitute for appropriate medical judgement, and is therefore written to be broad enough to allow for a wide range of diagnostic and treatment modalities and to purposely allow for philosophical and practice differences between various licensed, multi-disciplinary health care practitioners that provide care to injured workers with CTS. In order to address the varying clinical differences that may arise in the treatment of CTS within this guideline, the following statement is included: *It is expected that approximately ten percent (10%) of cases may fall outside of this guideline and may be reviewed and outcomes determined on a case by case basis. If objective clinical improvement is delayed or slower than expected, the treating provider must justify the necessity of continued care with a valid clinical rationale, with supporting, objective clinical findings.*

II. Background:

Carpal Tunnel Syndrome (CTS) is a common disorder with symptoms involving the median nerve. The median nerve is vulnerable to compression and injury in the palm and at the wrist, where it is bounded by the wrist (carpal) bones and the transverse carpal ligament. CTS is believed to be caused by local impairment of the median nerve at the carpal canal in the wrist secondary to narrowing or crowding of the nerve in the carpal tunnel. The median nerve is extremely vulnerable to compression and injury in the region of the wrist and palm. *The condition may have multiple, both work and non-work related, etiologies including, but not limited to:* 1) space-occupying lesions such as the residual of a wrist fracture, infections, local edema, tumors, flexor tenosynovitis (non-specific as well as that associated with rheumatoid arthritis), foreign bodies, or aberrant muscles; 2) systemic conditions such as pregnancy, obesity, diabetes mellitus, thyroid dysfunction, arthritis, or amyloidosis; 3) overuse of hand and wrist, trauma and repetitive movements, constricting bandages around wrist, or improper postural habits regarding the wrist joint; or 4) it may have a spontaneous or idiopathic onset. The condition can occur at any age, but occurs three to five times more frequently in women than men.

III. History:

- A. A detailed history considering work and non-work activities is essential and should include documentation of duration, evolution, precise anatomic location and intensity of all symptoms.
- B. Occupational Relationship: activities requiring continual use of the hands or repetitive motions using force may result in an occupation carpal tunnel syndrome. Prolonged flexion or extension, gripping, pressure over the palm, unusual hand postures (prolonged flexion), trauma and fractures of the wrist and hand are associated with the syndrome, vibration may also contribute.

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C. A history of CTS may elicit *any or all of the following*:

1. Character of symptoms: tingling, numbness, pain along the sensory distribution of the median nerve (dull, aching discomfort), hand weakness.
2. Frequency: episodic or constant.
3. Duration: days, weeks, or years.
4. Location: anatomic involvement, unilateral or bilateral.
5. Association with hand position or activity: repetitive, sustained or forceful wrist/finger motions; vibrating/oscillating tools.
6. Onset: relation to specific work or non-work activities, association with other medical conditions (see review of symptoms).
7. Relief: shaking the hand, vacation (time away from work and/or aggravating non-work activities).
8. Thenar atrophy may progress to marked muscle wasting with corresponding functional impairment. Vasomotor and skin trophic changes may include dryness, coldness, discoloration, and even ulceration within the median nerve distribution.
9. Similar symptoms may be seen in conditions such as more proximal syndrome should be ruled out.

IV. Physical Examination:

A. Both upper extremities must be evaluated. Any objective findings should correlate with the patient's history and symptoms. At least one of the following is required:

1. Absence of proximal syndrome (e.g. no nerve injury above the wrist).
2. Sensory loss or hyperesthesia to pinprick and light touch in the distal median nerve distribution.
3. Phalen's sign: maximum flexion of wrist to produce paresthesia in median nerve distribution, within 30 seconds, with elbow not greater than 90 degrees of flexion.
4. Tinel's sign: gentle tapping at the volar wrist crease (midline) to produce paresthesia in the median nerve distribution.
5. Inspection and palpation: atrophy of the thenar muscles.
6. Weakness or loss of active thumb opposition.

V. Diagnostic Testing Procedures:

A. Laboratory Testing: must correlate with history and physical examination findings. **Not allowed** if signs and symptoms are indicative of disease other than carpal tunnel or related systemic disease.

B. Plain X-rays indicated when history of direct injury or other abnormal process of the wrist and hand is documented. **Up to 4 views are allowed.**

C. Electrodiagnostic testing, including electromyography (EMG) and nerve conduction studies (NCS) is **Allowed** if clinically indicated.

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VI. Treatment and Therapeutic Procedures:

A. Outpatient-Non-Operative- Up to 8 Weeks:

1. The following office visits are **Allowable** in the initial 8 weeks of treatment:
 - a. Physician up to four (4) visits
 - b. Physical Therapy up to eight (8) visits
 - c. Occupational Therapy up to eight (8) visits
 - d. Chiropractic up to eight (8) visits
2. Immobilization with Splinting: should be done in the neutral position.
3. Patient education: the following shall be discussed with the patient at the initial physician visit and repeated thereafter as necessary:
 - a. Key points about signs and symptoms of CTS and postural body mechanic changes and behavior modification.
 - b. Causes of CTS and how to avoid them.
 - c. Instruction and demonstration in the purpose and correct use of treatment modalities and medications.
 - d. How medications work and their potential adverse effects.
4. Modalities: including cold, phonophoresis, iontophoresis is allowed if part of an overall treatment plan (**Not Allowed if sole method of treatment**).
5. Ergonomic assessment may be helpful if done by a qualified individual.
6. Medication: Non-steroidal, Anti-Inflammatory Drugs (NSAID) are probably the most useful medications in acute upper extremity pain. In mild cases, they may be the only drugs required for analgesia. **Analgesics (acetaminophen and acetylsalicylic acid):** are the common choices for non-narcotic analgesia. **Steroid Injections:** are allowed (*not to exceed* 3 injections in 16 weeks).
7. For cases that fail to show clinical improvement or deteriorate with treatment follow-up may be covered by Guideline Number 2-Carpal Tunnel Release.

B. Acupuncture:

Acupuncture is an accepted and widely used procedure for the relief of pain and inflammation and there is prolific scientific evidence to support its use. While the exact mode is only partially understood, Western medicine studies suggest acupuncture stimulates the nervous system at the level of the brain, promotes deep relaxation and affect the release of neurotransmitters. Acupuncture is commonly used as an alternative or in addition to traditional Western pharmaceuticals. While it is commonly used when pain medication is reduced or not tolerated, it may be used as an adjunct to physical rehabilitation and/or surgical intervention to hasten the return of functional activity.

a. Requirements

1. Acupuncture may be authorized when it is ordered by a licensed MD, or DC.
2. Acupuncture must be performed by an acupuncturist licensed by the Mass. Board of Registration.
3. Time to produce effect: six (6) visits in first eight (8) weeks.
4. After six (6) visits the ordering physician may approve additional visits if functional clinical progress is documented. Maximum visits are not to exceed 16 visits in 16 weeks.

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C. Outpatient-Non-Operative Treatment With Improvement: Weeks 9-16:

1. The following office visits are Allowed:

- | | |
|--------------------------------|---|
| a. Physician | -up to four (4) additional visits |
| b. Physical Therapy | -up to eight (8) additional visits |
| c. Occupational Therapy | -up to eight (8) additional visits |
| d. Chiropractic | -up to eight (8) additional visits |
| e. Acupuncture | *-up to ten (10) additional visits (with physician re-evaluation) |

VII. Special Considerations:

A. For patients treated by more than one discipline (e.g. physical therapy, allopathic medicine, and chiropractic) similar services shall not be duplicated.

B. The following treatments are **Not Allowed** when CTS is the only diagnosis:

1. Ultrasound
2. Electrical nerve (TENS) or muscle stimulators
3. Paraffin baths
4. Whirlpool baths
5. Fluid-therapy

VIII. Return to Work Expectations:

A. Ergonomic assessment may be indicated if done by a qualified individual.

B. Patient education: the following shall be discussed with the patient at the initial physician visit and repeated thereafter as necessary:

1. Key points about signs and symptoms of CTS and postural body mechanic changes and behavior modification.
2. Causes of CTS and how to avoid them.
3. Instruction and demonstration in the purpose and correct use of treatment modalities and medications.
4. How medications work and their potential adverse effects.

Sources: Colorado, Department of Labor and Employment
California, Industrial Medical Council
National Guideline Clearinghouse
American Academy of Orthopedics
Maine Workers Compensation Board
State of Washington, Department of Labor and Industries
Massachusetts's Health Care Services Board

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GUIDELINE NUMBER 2 - CARPAL TUNNEL RELEASE (SURGICAL)

I. Introduction:

The attached clinical guideline has been created to consistently improve health care services provided to injured workers by outlining the appropriate information gathering and decision making processes involved in the management of CTS in adults, **that is determined to be work related**. The guideline is a consensus document, and should be used as a tool to guide various multi-disciplinary health care practitioners to provide quality care to injured workers. The guideline is not intended to substitute for appropriate medical judgement, and is therefore written to be broad enough to allow for a wide range of diagnostic and treatment modalities and to purposely allow for philosophical and practice differences between various licensed, multi-disciplinary health care practitioners that provide care to injured workers with CTS. In order to address the varying clinical differences that may arise in the treatment of CTS within this guideline the following statement is included: *It is expected that approximately ten percent (10%) of cases may fall outside of this guideline and may be reviewed and outcomes determined on a case by case basis. If objective clinical improvement is delayed or slower than expected, the treating provider must justify the necessity of continued care with a valid clinical rationale, with supporting, objective clinical findings.*

II. Background:

Carpal Tunnel Syndrome (CTS) is a common disorder with symptoms involving the median nerve. The median nerve is vulnerable to compression and injury in the palm and at the wrist, where it is bounded by the wrist (carpal) bones and the transverse carpal ligament. CTS is believed to be caused by local impairment of the median nerve at the carpal canal in the wrist secondary to narrowing or crowding of the nerve in the carpal tunnel. The median nerve is extremely vulnerable to compression and injury in the region of the wrist and palm. The condition may have multiple associations including: 1) space-occupying lesions such as the residual of a wrist fracture, infections, local edema, tumors, flexor tenosynovitis (non-specific as well as that associated with rheumatoid arthritis), foreign bodies, or aberrant muscles; 2) systemic conditions such as pregnancy, obesity, diabetes mellitus, thyroid dysfunction, arthritis, or amyloidosis; 3) overuse of hand and wrist, trauma and repetitive movements, constricting bandages around wrist, or improper postural habits regarding the wrist joint; or 4) it may have a spontaneous or idiopathic onset. The condition can occur at any age but occurs three to five time more frequently in women than men. Carpal Tunnel Syndrome (CTS) that does not resolve with conservation measures or is rapidly progressing may require surgical intervention. Surgical intervention is meant to increase the size of the carpal tunnel.

III. History:

A. A detailed history considering work and non-work activities is essential and should include documentation of duration, evolution, precise anatomic location and intensity of all symptoms.

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- B.** Occupational Relationship: activities requiring continual use of the hands or repetitive motions using force may result in an occupation carpal tunnel syndrome. Prolonged flexion or extension, gripping, pressure over the palm, unusual hand postures (prolonged flexion), trauma and fractures of the wrist and hand are associated with this syndrome, vibration may also contribute. A detailed history considering work and non-work related activities is essential and should include duration, evolution and anatomic location of all symptoms.
- C.** Both upper extremities must be evaluated. Any objective findings should correlate with the patient's history and symptoms. A history of CTS may elicit *any or all of following*. At least one of the following is required:
1. Character of symptoms: tingling, numbness, pain along the sensory distribution of the median nerve (dull, aching discomfort), hand weakness.
 2. Frequency: episodic or constant.
 3. Duration: days, weeks, months or years.
 4. Location: anatomic involvement, unilateral or bilateral.
 5. Association with hand position or activity: repetitive, sustained or forceful wrist/finger motions; vibrating/oscillating tools.
 6. Onset: relation to specific work or non-work activities, association with other medical conditions (see review of symptoms).
 7. Relief: shaking the hand, vacation (time away from work and/or aggravating non-work activities).
 8. Thenar atrophy may progress to marked muscle wasting with corresponding functional impairment. Vasomotor and skin trophic changes may include dryness, coldness, discoloration, and even ulceration within the median nerve distribution.
 9. Similar symptoms may be seen in conditions such as more proximal syndrome and should be ruled out.

IV. Physical Examination:

- A.** Both upper extremities must be evaluated. Any objective findings should correlate with the patient's history and symptoms. At least one of the following is required:
1. Absence of proximal syndrome (e.g. no nerve injury above the wrist).
 2. Sensory loss or hyperesthesia to pinprick and light touch in the distal median nerve distribution.
 3. Phalen's sign: maximum flexion of wrist to produce paresthesia in median nerve distribution, within 30 seconds, with elbow not greater than 90 degrees of flexion.
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V. Diagnostic Testing Procedures:

- A. The following diagnostic tests are allowed if clinically indicated, even if the procedures have been previously performed under Guideline #1.
- a. Laboratory Testing: -one series allowed.
 - b. Plain X-rays: -up to 4 views are allowed.
 - c. Electrodiagnostic Testing: studies include electromyography (EMG) and nerve conduction studies (NCS) -one of each test allowed.

VI. Treatment and Therapeutic Procedures:

A. Operative Treatment:

- 1. Two techniques for surgical release are acceptable:
 - a. Open incision
 - b. Endoscopic transverse carpal tunnel release
- 2. Surgery shall be allowed on an outpatient basis only.
- 3. Surgery shall be performed on only one extremity at a time.
- 4. One (1) surgical pre-operative visit shall be allowed for education regarding post-operative rehabilitation (e.g. PT, OT).

B. Additional surgical procedures are not indicated unless the indications for the following procedures are clearly documented:

- 1. Tenosynovectomy
- 2. Opponensplasty
- 3. Simultaneous Guyon's canal exploration and neurolysis.

C. Post-Operative Treatment:

- 1. Similar services shall not be duplicated for patients treated by more than one discipline (e.g. physical therapy, allopathic medicine, chiropractic, acupuncture)
- 2. Office visits allowed in weeks 1-12:
 - a. Physician two (2) visits
 - b. Chiropractic maximum of sixteen (16) visits
 - c. Physical therapy maximum of sixteen (16) visits
 - d. Occupational Therapy maximum of sixteen (16) visits
- 3. **Acupuncture**

Acupuncture is an accepted and widely used procedure for the relief of pain and inflammation, and there is prolific scientific evidence to support its use. While the exact mode is only partially understood, western medicine studies suggest that acupuncture stimulates the nervous system at the level of the brain, promotes deep relaxation, and affects the release of neurotransmitters. Acupuncture is commonly used when a pain medication is reduced or not tolerated. It may also be used as an adjunct to physical rehabilitation and/or surgical intervention to hasten the return of functional activity.

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C. Post-Operative Treatment, Continued:

1. Acupuncture

a. Office visits allowed in weeks 1-6:

1. Time to produce effect: maximum of six (6) visits in first eight (8) weeks with authorization from a licensed MD or DC.

b. Office visits allowed in weeks 8-12:

1. If functional clinical progress is demonstrated on re-evaluation, ordering physician may authorize an additional ten (10) visits. Maximum visits not to exceed sixteen (16) visits in twelve (12) weeks.

VII. Special Considerations :

A. *Similar services shall not be duplicated for patients treated by more than one discipline (e.g. physical therapy, allopathic medicine, and chiropractic).*

B. Surgery shall be allowed on an outpatient basis only.

C. *Surgery shall be performed on only one extremity at a time.*

D. One (1) pre-operative visit shall be allowed for education regarding post-operative rehabilitation (e.g. PT, OT).

VIII. Return to Work Expectations :

A. Ergonomic assessment may be indicated if done by a qualified individual.

Sources: Colorado, Department of Labor and Employment
California, Industrial Medical Council
National Guideline Clearinghouse
American Academy of Orthopedics
Maine, Workers Compensation Board
State of Washington, Department of Labor and Industries
Massachusetts's Health Care Services Board

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**GUIDELINE NUMBER 3 - THORACIC OUTLET SYNDROME
VASCULAR ORIGIN - VENOUS**

I. Conservative Care:

A. Not Applicable

II. Clinical Findings:

A. Subjective - at least three of the following must be present in the affected upper extremity:

1. Pain
2. Swelling or heaviness
3. Decreased temperature or change in color
4. Paresthesias in the ulnar nerve distribution

AND

B. Objective - for Venous TOS: must meet one of the following:

1. Swelling or venous engorgement; **or**
2. Cyanosis; **or**
3. Dilation of veins

C. Imaging -must meet one of the following:

1. Abnormal venogram; **or**
2. Abnormal plethysmography

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**GUIDELINE NUMBER 4 - THORACIC OUTLET SYNDROME
VASCULAR ORIGIN - ARTERIAL**

I. Conservative Care:

A. Not Applicable

II. Clinical Findings:

A. Subjective - at least three of the following must be present in the affected upper extremity:

1. Pain
2. Swelling or heaviness
3. Decreased temperature or change in color
4. Paresthesias in the ulnar nerve distribution

AND

B. Objective - for Arterial TOS: must meet one of the following:

1. Pallor or coolness; **or**
2. Gangrene of the digits in advanced cases

C. Imaging - must meet one of the following:

1. Abnormal arteriogram; **or**
2. abnormal doppler ultrasonography

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**GUIDELINE NUMBER 5 - THORACIC OUTLET SYNDROME
NEUROGENIC ORIGIN**

I. Conservative Care:

- A. 3 months of conservative treatment; **and**
- B. A second surgical opinion from a non-surgical specialist (e.g., neurologist, physiatrist, or rheumatologist)

AND

II. Clinical Findings:

- A. Subjective - in the affected upper extremities:
 - 1. Pain; **and**
 - 2. Numbness or paresthesias in the ulnar nerve distribution; **and**
 - 3. At least two of the following tests must exactly reproduce symptoms of pain with or without pulse obliteration (in the affected upper extremity):
 - a. Roos' maneuver
 - b. Adson's maneuver
 - c. Costoclavicular maneuver
 - d. Hyperabduction maneuver

AND

- B. Objective - in the affected upper extremity:
 - 1. Positive doppler ultrasonography; **or**
 - 2. Positive nerve conduction, EMG or somatosensory evoked potential studies

OR

- C. Imaging
 - 1. X-ray studies that confirm the presence of cervical ribs, elongated C-7 process, hypoplastic first rib or fractured clavicle.

III. Special Instructions:

- A. *A psychiatric or psychological evaluation may be required on a case-specific basis.*

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**GUIDELINE NUMBER 6 - ROTATOR CUFF REPAIR
SHOULDER**

I. Conservative Care:

A. Failure to improve with outpatient therapy and conservative care for the following time periods:

1. Acute case: 1 to 3 weeks; **or**
2. Erosive case: 3 to 6 months*

*Three months of conservative care is adequate if treatment has been continuous; six months applies to those cases in which treatment has been intermittent.

AND

II. Clinical Findings:

A. Subjective

1. Severe shoulder pain and inability to raise shoulder

AND

B. Objective

1. Weak or absent abduction; **and**
2. Tenderness over rotator cuff; **and/or**
3. Pain relief obtained with an injection of anesthetic for diagnostic/therapeutic trial

AND

C. Imaging

1. Positive findings on arthrogram, MRI, or ultrasound; or
2. Positive findings on previous arthroscopy, if performed

III. Special Instructions:

A. *Cervical pathology and frozen shoulder syndrome should be ruled out prior to the request.*

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**GUIDELINE NUMBER 7 - ANTERIOR ACROMIONECTOMY
FOR ACROMIAL IMPINGEMENT SYNDROME
SHOULDER**

I. Conservative Care :

A. Failure to improve with 4-6 months of conservative care

AND

II. Clinical Findings:

A. Subjective

1. Pain with active arc motion 90 to 130 degrees; **and**
2. Pain at night

AND

B. Objective

1. Positive impingement test and relief of pain with anesthetic injection (Tenderness in the anterior acromial area may also be present)

AND

C. Imaging

1. Suggested:
 - a. X-ray of coraco-acromial to document status of bony arch

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**GUIDELINE NUMBER 8 - REPAIR OF AC OR CC LIGAMENTS
ACROMIO-CLAVICULAR SEPARATION
SHOULDER**

I. Conservative Care :

- A. Applicable to those separations that cannot be reduced and held in a brace; **or**
- B. Failure to improve after 1 week trial period in support brace

AND

II. Clinical Findings:

- A. Subjective
 - 1. Localized pain at AC joint

AND

- B. Objective
 - 1. Prominent distal clavicle

AND

- C. Imaging
 - 1. Separation at AC joint with weight-bearing films

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**GUIDELINE NUMBER 9 - MUMFORD PROCEDURE
ACROMIO-CLAVICULAR SEPARATION
SHOULDER**

I. Conservative Care:

- A. Failure to improve within 30-60 days of conservative care

AND

II. Clinical Findings:

A. Subjective

1. Pain at AC joint; aggravation of pain with motion of shoulder or carrying weight

AND

B. Objective

1. Confirmation that separation of AC joint is unresolved; **and**
2. Prominent distal clavicle; **and/or**
3. Pain relief obtained with an injection of anesthetic for diagnostic/therapeutic trial

AND

C. Imaging

1. Separation of AC joint with weight-bearing films; or
2. Severe DJD at AC joint noted on x-rays

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**GUIDELINE NUMBER 10 - OPEN BANKART OR BRISTOW
FOR RECURRENT DISLOCATION
SHOULDER**

I. Conservative Care :

A. None

II. Clinical Findings:

A. Subjective

1. History of multiple dislocation that inhibit activities of daily living

AND

B. Objective

1. None

C. X-ray allowed:

1. X-ray to either confirm dislocation or exclude fracture or other bony abnormalities

III. Special Instructions :

- A. *A second surgical opinion and psychiatric/psychological evaluation will be obtained if this is the second request for this procedure.*

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**GUIDELINE NUMBER 11 - REPAIR OF BICEPS TENDON
PROXIMAL RUPTURE OF THE BICEPS
SHOULDER**

I. Conservative Care :

A. None

II. Clinical Findings:

A. Subjective

1. Complaint of more than "normal" amount of pain that does not resolve with attempt to use arm

AND

B. Objective

1. Palpation of "bulge" in upper aspect of arm

C. Imaging

1. None

III. Special Instructions :

A. 90% do not need repair.

B. Consideration of the tenodesis should include the following:

1. Patient should be a young adult; **or**
2. Procedure should be done in conjunction with another open repair; **or**
3. There should be evidence of an incomplete tear

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**GUIDELINE NUMBER 12 - REPAIR OF BICEPS TENDON
DISTAL RUPTURE OF THE BICEPS
SHOULDER**

I. Conservative Care:

A. None

II. Clinical Findings:

A. Subjective

1. Pain

AND

B. Objective

1. Inability of physician to palpate the insertion of the tendon at the patient's antecubital fossa

AND

C. Imaging

1. None

III. Special Instructions:

A. *All should be repaired within one week of injury or diagnosis.*

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**GUIDELINE NUMBER 13 - SHOULDER ARTHROSCOPY
FOR DIAGNOSTIC PURPOSES
SHOULDER**

I. Conservative Care :

A. None

II. Clinical Findings:

A. Subjective

1. Acute pain; **or**
2. Limitation of function despite conservative treatment

AND

B. Objective

1. Diminution of function

AND

C. Imaging

1. Inconclusive

III. Special Instructions :

- A. *This procedure is used primarily for diagnostic purposes when other imaging is inconclusive and acute pain or limitation of function continues despite conservative care. Shoulder arthroscopy should be performed in the outpatient setting. Request for authorization for this procedure in the inpatient setting will be reviewed by a peer physician.*

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**GUIDELINE NUMBER 14 - ANTERIOR CRUCIATE
LIGAMENT (ACL) REPAIR
KNEE**

I. Conservative Care :

A. Not Applicable

II. Clinical Findings:

A. Subjective (Pain alone is not an indication)

1. Instability of the knee; described as "buckling or giving way"; and
 - a. Significant effusion at time of injury; and/or
 - b. Description of injury indicates a rotary twisting or hyperextension occurred

AND

B. Objective

1. Positive Lachman's sign
2. Supportive findings:
 - a. Positive pivot shift; and/or
 - b. Positive anterior drawer; and/or
 - c. Positive KT 1000, > 3-5 mm = +1
> 5-7 mm = +2
> 7 mm = +3

AND

C. Imaging - Positive findings with:

1. Arthrogram; **or**
2. MRI; **or**
3. Arthroscopy

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**GUIDELINE NUMBER 15 - PATELLA TENDON RE-ALIGNMENT
MAQUET PROCEDURE
KNEE**

I. Conservative Care :

A. Not Applicable

II. Clinical Findings:

A. Subjective

1. Rest-sitting pain

AND

B. Objective

1. Pain with patellar/femoral movement; **and/or**
2. Recurrent dislocations

AND

C. Imaging

1. Recurrent effusion; **and**
2. Patella apprehension; **and**
3. Synovitis with or without crepitus; **and**
4. Lateral tracking; **and**
5. Increased Q angle > 15 degrees

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GUIDELINE NUMBER 16 - KNEE JOINT REPLACEMENT

I. Conservative Care :

A. Not Applicable

II. Clinical Findings :

A. Subjective

1. Limited range of motion; and
2. Night pain of the joint; and
3. No relief of pain with conservative care

AND

B. Diagnostic Testing:

1. Positive findings (significant loss or erosion of cartilage to the bone) of one of the following:
 - a. Standing x-rays; **or**
 - b. Arthroscopy

III. Special Instructions :

A. *If 2 or 3 compartments are affected, a total replacement is indicated. If only 1 compartment is affected, a unicompartmental or partial replacement is indicated.)*

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**GUIDELINE NUMBER 17 - LATERAL LIGAMENT ANKLE RECONSTRUCTION
FOR CHRONIC INSTABILITY OF ANKLE**

I. Conservative Care:

A. Physical Therapy

- 1. Immobilization with support cast or ankle brace**

B. Rehab Program

- C. For either of the above, time frame will be variable with severity of trauma**

AND

II. Clinical Findings:

A. Subjective

- 1. Instability of the ankle**
 - a. buckling; or**
 - b. giving away**

OR

- 2. Supportive findings:**
 - a. complaint of swelling; or**
 - b. complaint of pain**

AND

B. Objective

- 1. Positive anterior drawer**

AND

C. Imaging

- 1. Positive stress x-rays identifying motion at ankle or subtalar joint. At least 15° lateral opening at the ankle joint; or**
- 2. Demonstrable subtalar movement; and**
- 3. Negative to minimal arthritic joint changes on x-ray.**

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**GUIDELINE NUMBER 18 - LATERAL LIGAMENT ANKLE RECONSTRUCTION
FOR ACUTE ANKLE SPRAIN/STRAIN INVERSION INJURY**

I. Conservative Care:

A. Physical Therapy

- 1. Immobilization with support cast or ankle brace**

B. Rehab Program

- C. For either of the above, time frame will be variable with severity of trauma**

AND

II. Clinical Findings:

A. Subjective

- 1. Description of an inversion; **and/or****
- 2. Hyperextension injury, ecchymosis, swelling**

B. Objective

- 1. Grade 3 injury (lateral injury); **and/or****
- 2. Osteochondral fragment; **and/or****
- 3. Medial incompetence; **and****
- 4. Positive anterior drawer**

C. Imaging

- 1. Positive stress x-rays identifying motion at ankle or subtalar joint. At least 15° lateral opening at the ankle joint; **or****
- 2. Demonstrable subtalar movement; **and****
- 3. Negative to minimal arthritic joint changes on x-ray**

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**TREATMENT GUIDELINES
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**GUIDELINE NUMBER 19 - FUSION ANKLE-TARSAL-METATARSAL TO TREAT
NON-UNION OR MALUNION OF A FRACTURE OR TRAUMATIC ARTHRITIS SECONDARY
TO ON THE JOB INJURY TO THE AFFECTED JOINT**

I. Conservative Care :

A. Immobilization which may include:

- 1. Casting, bracing, shoe modification or other orthotics; or**
- 2. Anti-inflammatory medications**

AND

II. Clinical Findings :

A. Subjective

- 1. Pain including that which is aggravated by activity and weight-bearing; and**
- 2. Relieved by Xylocaine injection**

AND

B. Objective

- 1. Malalignment; and**
- 2. Decreased range of motion**

AND

C. Imaging - Positive x-ray confirming presence of:

- 1. Loss of articular cartilage (arthritis); or**
- 2. Bone deformity (hypertrophic spurring, sclerosis); or**
- 3. Non or mal-union of a fracture**

III. Special Instructions :

- A. Supportive imaging could include: Bone Scan (for arthritis only) to confirm localization, or MRI, or Tomography.**

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**GUIDELINE NUMBER 20 – DIAGNOSIS AND TREATMENT OF NECK AND
BACK (SPINAL) INJURIES**

**CONSERVATIVE OUTPATIENT TREATMENT
(UP TO 6 WEEKS FROM DATE OF INJURY)**

I. Background:

- A. The guideline for the diagnosis and treatment of spinal injuries is a consensus document, not a scientific treatise on the subject. For this reason the guideline must be broad enough to incorporate a wide range of diagnostic and treatment modalities. This allows for philosophical and practice differences between the various licensed health care practitioners in the state of Massachusetts.
- B. Some of the conservative treatment modalities dealt with in this guideline are rest, medication, immobilization, mobilization, manipulation, spinal adjustment, massage, physical agent modalities, rehabilitation and education.
- C. This guideline is meant to cover the majority of tests and treatments. It is expected that approximately 10% of cases will fall outside this guideline and require review on a case by case basis.

II. Exclusions :

- A. Concurrent unexplained fever over 48 hours
- B. Neoplasm
- C. Severe trauma - such as fracture or ligamentous injury
- D. Documented specific diagnoses (rheumatoid arthritis, herniated disc, spinal stenosis, spondylolisthesis, congenital fusion, diastematomyelia, hemivertebra, spinal osteomyelitis, prior spinal surgery at the same level.)
- E. A history of documented severe radicular pain and paresthesias related to neck movement and physical findings displaying motor weakness and reflex changes.
- F. Impaired bowel and bladder function
- G. Increasing pain and/or symptoms, despite treatment

III. Diagnostic and Treatment Measures (Up to 6 weeks from date of injury):

- A. Diagnostic Tests: - **Allowed**
 - 1. X-rays:
 - a. Back - Maximum 4 views (one study **Allowed**)
 - b. Neck - Maximum 5 views (one study **Allowed**)

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B. Diagnostic Tests: - *Not Allowed*

1. CT, MRI, Bone Scan
2. Computer Back Testing (CBT)
3. All EMG and Nerve Conduction Studies
4. Functional Capacity Evaluation (FCE)
5. Work Capacity Evaluation (WCE)
6. Thermogram
7. Myelogram
8. Evoked Potentials

C. Outpatient Treatment - *Allowed* (Within scope of license):

1. Medical office treatment sessions - maximum 4 visits in first 6 weeks
2. Physical therapy treatment sessions - maximum 18 visits in first 6 weeks
3. Occupational therapy treatment sessions - maximum 6 visits in first 6 weeks
4. Chiropractic treatment sessions - maximum 18 visits in first 6 weeks
5. Bedrest - maximum 2 days
6. Prescribed non-narcotic analgesics: muscle relaxants, nonsteroidal anti-inflammatory drugs
7. Narcotics - maximum 5 day course
8. Trigger point injection - maximum 2 injections within 4 weeks
9. Lumbar support
10. Cervical collar
11. Traction (Neck)
12. Manual therapy/spinal adjustment/manipulation
13. Therapeutic exercise (under the direct supervision of a licensed healthcare provider)
14. Patient education including activities of daily living, joint protection techniques, and back pain recovery and prevention - encouraged
15. Modified work activity through the recovery process - encouraged
16. Physical agents and modalities (e.g., heat/cold, electrical stimulation, iontophoresis/phonophoresis, ultrasound, fluorimethane) maximum of 2 allowed per treatment session

D. Outpatient Treatment - *Not Allowed*

1. Facet injection
2. Epidural block
3. Spinal Traction (Back)
4. Physical agents and modalities (e.g., heat/cold, electrical stimulation, iontophoresis/phonophoresis, ultrasound, fluorimethane) if only treatment procedure

E. Inpatient Treatment - *Not Allowed*

F. For patients treated by more than one discipline (physical therapy, occupational therapy, allopathic medicine and chiropractic), similar services should *not* be duplicated.

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**GUIDELINE NUMBER 21 - DIAGNOSIS AND TREATMENT OF NECK AND
BACK (SPINAL) INJURIES**

**CONSERVATIVE OUTPATIENT TREATMENT
(FROM 7 TO 12 WEEKS FROM DATE OF INJURY)**

I. Background:

- A. The guideline for diagnosis and treatment of spinal injuries is a consensus document, not a scientific treatise on the subject. It is understood that a certain number of injured employees treated under Guideline Number 20 will require continued care.
- B. This guideline is meant to cover the majority of tests and treatments. It is expected that approximately 10% of cases will fall outside this guideline and require review on a case by case basis.

II. Inclusions/Qualifications:

- A. Persistent patient conditions for entry into this guideline:
 - 1. Return to part or full time work with limiting symptoms
 - 2. Symptoms unimproved over 3 weeks with treatment
 - 3. Not back to work with symptoms (supported by objective findings)
 - 4. Symptoms over 2 weeks without treatment

III. Diagnostic and Treatment Measures (From 7 to 12 weeks from date of injury):

- A. Diagnostic Tests - **Allowed** (unless previously taken)
 - 1. X- rays:
 - a. Back - Maximum 4 views (one study Allowed)
 - b. Neck - Maximum 5 views (one study Allowed)
 - 2. FCE or WCE (one study Allowed):
Must be supported by objective findings and measurements
- B. Diagnostic Tests - **Not Allowed**
 - 1. CT, MRI, Bone Scan*
 - 2. Computer Back Testing (CBT)
 - 3. All EMG and Nerve Conduction Studies
 - 4. Thermogram
 - 5. Myelogram
 - 6. Evoked Potentials

***Exception:** An MRI, CT Scan or Bone Scan (one study) is Allowed under the following circumstances:

- 1. an emergency, serious, underlying medical condition; **or**
- 2. physiological evidence of neurological dysfunction; **or**
- 3. failure to progress or respond

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C. Outpatient treatment - *Allowed* (within scope of license)

1. Medical office treatment sessions- maximum 2 visits between weeks 7 and 12
2. Occupational therapy treatment sessions - maximum 10 visits between week 7 and 12
3. Physical therapy treatment sessions- maximum 10 visits between weeks 7 and 12
4. Chiropractic treatment sessions- maximum 10 visits between weeks 7 and 12
5. Prescribed non-narcotic analgesics, muscle relaxants, non-steroidal anti-inflammatory agents
6. Traction (Neck)
7. Trigger point injection - Maximum of one between weeks 7 and 12 only
8. Manual therapy/spinal adjustment/ manipulation
9. Physical agents (heat/cold, electrical stimulation, iontophoresis/phonophoresis, ultrasound, flouromethane) - maximum of 1 **Allowed** per treatment session

D. Inpatient treatment - *Not Allowed*

E. Outpatient treatment procedures - *Not Allowed*

1. Scheduled narcotic medication
2. Spinal Traction (back)
3. TENS
4. Physical agents (heat/cold, electrical stimulation, iontophoresis/phonophoresis, ultrasound, flouromethane)- **Not Allowed** as the only treatment

F. Patient education and activities of daily living, joint protection techniques and monitored exercise - encouraged

G. Activity - formal employer contact for transitional/modified work availability- encouraged

1. **For patients treated by more than one discipline (physical therapy, occupational therapy, allopathic medicine, and chiropractic), similar services should *not* be duplicated.**
2. **For treatment beyond 12 weeks from date of injury, see Guideline Numbers 26 or 27.**

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**TREATMENT GUIDELINES
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**GUIDELINE NUMBER 22 - SURGERY FOR CERVICAL RADICULOPATHY
FOR ENTRAPMENT OF A SINGLE NERVE ROOT**

I. Conservative Care:

A. 6-8 weeks minimum - for example:

1. physical therapy
2. non-steroid anti-inflammatory agents
3. cervical traction

AND

II. Clinical Findings:

A. Subjective

1. Sensory symptoms in a dermatomal distribution (could include: radiating pain, paraesthesia, tingling, burning, or numbness)

AND

B. Objective

1. Dermatomal sensory deficit; **or**
2. Motor deficit; **or**
3. Reflex changes; **or**
4. Positive EMG

AND

C. Imaging

1. Abnormal test results that correlate with the level of nerve root involvement consistent with subjective and objective findings. Tests could include CT scan, MRI, or Myelogram.

III. Special Instructions:

A. *Cases to be referred to a physician advisor:*

1. *Repeat surgery at same level*
2. *Request for surgery at the C#-4 level*
3. *Requests for surgery with signs and symptoms indicating myelopathy*

B. *When requesting authorization for decompression of multiple level nerve roots, each level is subject to the criteria.*

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**GUIDELINE NUMBER 23 - DIAGNOSIS AND OUTPATIENT TREATMENT
OF A SINGLE LUMBAR SPINAL NERVE ROOT ENTRAPMENT**

I. Background:

- A. Compression of a lumbar nerve root causes inflammation, vascular compromise, and leg pain. Causes include disk herniation, burst fractures or fracture dislocations, spondylolisthesis or other malalignments, congenital or degenerative narrowing of the spinal canal or foramina, and abnormal bone formation after spinal fusion or with Paget's disease or fluorosis.
- B. This guideline is meant to cover the usage of a vast majority of tests and treatments, but it is expected that approximately 10% of cases will fall outside this guideline and thus require a review. It is expected that a strong majority of these outliers should be accepted as management within acceptable, although not average, standards of care.

II. Diagnostic Criteria:

- A. Symptoms - must meet one of the following:
 - 1. Radicular pain (sharp, shooting) within nerve root distribution with or without back pain; **or**
 - 2. Weakness or sensory disturbance in limb; **or**
 - 3. Bowel and bladder dysfunction
- B. Objective Physical Findings: (One required to be positive in order to proceed with diagnostic tests)
 - 1. Atrophy of calf or thigh
 - 2. Segmental motor loss
 - 3. Femoral stretch test positive
 - 4. Knee or ankle reflex (including posterior tibial) decrease
 - 5. Sensory loss in distribution of nerve root pattern
 - 6. Positive straight or reversed straight leg raising producing leg pain confirmed in 2 anatomic positions (sitting and supine)
- C. Appropriate Diagnostic Test: (Maximum of 3 if results negative)
 - 1. Low back x-rays if not done since injury
 - 2. CT scan
 - 3. MRI
 - 4. Myelogram/CT
 - 5. Bone scan (not as only diagnostic test)
 - 6. EMG (not as sole diagnostic test or under 21 days from onset of symptoms)
 - 7. Laboratory testing if metabolic or oncologic diagnosis suspected

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D. Not allowed under this guideline:

1. Myeloscapy
2. Discography
3. Somatosensory evoked potentials
4. Thermography
5. Evoked potentials

III. Outpatient Treatment (Within scope of license):

A. Non-operative: (Maximum duration of care 6 months from date of injury)

1. Physician office treatment sessions maximum 12 visits
2. Physical therapy treatment sessions maximum 42 visits
3. Occupational therapy treatment sessions maximum 6 visits
4. Chiropractic treatment sessions maximum 42 visits
5. Physical agents (heat/cold, electrical stimulation, traction, biofeedback, iontophoresis/phonophoresis, ultrasound, fluori-methane) maximum of 2 allowed per treatment session - **Not allowed if only treatment**
6. Lumbar support – **Allowed**
7. Epidural steroid injection (maximum 3)
8. Facet injection - **Allowed** (maximum of 3)
9. Medications:
 - a. Narcotic medication (not over 6 weeks duration in treatment)
 - b. Non-narcotic analgesics, muscle relaxants, nonsteroidal anti-inflammatory drugs - No limit
10. Rehabilitation referral (education, aerobic and job specific exercise, functional capacity test) - **Allowed**
11. Activities of daily living, joint protection techniques, and back pain recovery and prevention - **Allowed**
12. Manual therapy/spinal adjustment/manipulation - **Allowed**
13. For patients treated by more than one discipline (physical therapy, occupational therapy, allopathic medicine, and chiropractic, similar services should not be duplicated.)

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**GUIDELINE NUMBER 24 - OPERATIVE TREATMENT OF A SINGLE LUMBAR
SPINAL NERVE ROOT ENTRAPMENT**

I. Background:

- A.** Compression of a lumbar nerve root causes inflammation, vascular compromise, and leg pain. Causes include disk herniation, burst fractures or fracture dislocations, spondylolisthesis or other malalignments, congenital or degenerative narrowing of the spinal canal or foramina, and abnormal bone formation after spinal fusion or with Paget's disease or fluorosis.
- B.** This guideline is meant to cover the usage of a vast majority of tests and treatments, but it is expected that approximately 10% of cases will fall outside this guideline and thus require a review. It is expected that a strong majority of these outliers should be accepted as management within acceptable, although not average, standards of care.

II. Diagnostic Criteria:

- A.** Symptoms - must meet one of the following:
1. Radicular pain (sharp, shooting) within nerve root distribution with or without back pain
 2. Weakness or sensory disturbance in limb
 3. Bowel or bladder dysfunction
 4. Inability to control pain on an outpatient basis
 5. Inability to maintain activity required for outpatient status 2° non-supportive home situation
- B.** Objective Physical Findings: (One required to be positive in order to proceed with diagnostic tests)
1. Atrophy of calf or thigh
 2. Segmental motor loss
 3. Femoral stretch test positive
 4. Knee or ankle reflex (including posterior tibial) decrease
 5. Sensory loss in distribution of nerve root pattern
 6. Positive straight or reversed straight leg raising producing leg pain confirmed in 2 anatomic positions (sitting and supine)
- C.** Appropriate Diagnostic Test: (Maximum of 3 if results negative)
1. Low back x-rays if not done since injury
 2. CT scan
 3. MRI
 4. Myelogram/CT
 5. Bone scan (not as only diagnostic test)
 6. EMG (not as sole diagnostic test or under 21 days from onset of symptoms)
 7. Laboratory testing if metabolic or oncologic diagnosis suspected
- D. Not allowed under this guideline:**
1. Myeloscopy
 2. Discography
 3. Somatosensory evoked potentials
 4. Thermography
 5. Evoked potentials

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III. Inpatient Treatment:

A. Operative Care:

1. Surgical Options:

- a.** Laminectomy, Laminotomy, Discectomy, Micro-discectomy, Foraminotomy, Foraminal decompression, Spinal fusion

2. Indications: (All must be present)

- a.** Radiating (radicular) leg pain greater than back pain
- b.** Objective evidence of significant or progressive neurologic deficit in the distribution of a single spinal nerve as indicated by any one of the following objective signs:
 - 1.** Motor deficit (e.g., foot drop or quadriceps weakness)
 - 2.** Sensory deficit
 - 3.** Reflex changes
 - 4.** Positive EMG

Documented (MRI, CT scan or myelogram) evidence of nerve root compression

B. Length of Stay: 0-5 days post-operative - (7 days for spinal fusion)

C. Physical Therapy: **Allowed**

D. Indications for Discharge:

- 1.** No complication requiring hospitalization (wound infection, spinal fluid leak, DVT, etc.)
- 2.** Ambulatory status consistent with home care (home health care may be needed)

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E. Post Hospital Treatment:

1. Maximum duration of recovery 4 months from time of surgery (1 year for spinal fusion)
2. Office visits - 5 in first 4 months
3. Physical therapy treatment session maximum 24 visits
4. Chiropractic treatment sessions maximum 24 visits
5. Occupational therapy maximum 6 visits
6. Non-narcotic analgesics, muscle relaxants, non-steroidal anti-inflammatory agents - **Allowed**
7. Activity - formal employer contact for transitional modified work availability _ Encouraged
8. Rehabilitation referral (education, aerobic and job specific exercises, vocational rehabilitation, functional capacity test) - **Allowed**
9. Physical agents (heat.cold, electrical stimulation, biofeedback, iontophoresis/phonophoresis, ultrasound, flouri-methane) maximum of 1 allowed per treatment session - **Not allowed** if only treatment - generally de-emphasized
10. Therapeutic and aquatic exercises - Encouraged
11. Patient education and activities of daily living, joint protection techniques, and back pain recovery and prevention - Encouraged
12. Vocational rehabilitation - **Allowed**

F. For patients treated by more than one discipline (physical therapy, occupational therapy, allopathic medicine, and chiropractic), similar services should not be duplicated.

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GUIDELINE NUMBER 25 - CAUDA EQUINA SYNDROME

I. Conservative Care :

A. Not Applicable

II. Clinical Findings:

A. Subjective

1. Sudden onset or rapid progression of sensory symptoms

AND

B. Objective

1. Acute progressive neurological deficit that is either bilateral or involves multiple neurological levels

AND

C. Imaging

1. Demonstrates a large lesion producing central stenosis with tight obstruction. Test include: CT Scan, or MRI, or Myelogram

D. This screening criteria is used to evaluate requests for surgical intervention to treat Cauda Equina Syndrome. In the event a worker experiences a sudden onset, or rapid progression of symptoms, surgery should not be delayed if the physician believes that such a delay will jeopardize the patient's health and safety or compromise the results of surgery.

III. Criteria for Authorizing Surgery:

A. Surgery for Cauda Equina Syndrome will be authorized if both of the following conditions are met.

1. Myelogram, MRI, or CT scan showing a large lesion producing central stenosis of the spinal canal with tight obstruction

AND

2. Acute progressive neurological deficit that is either bilateral or involves multiple neurological levels.

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GUIDELINE NUMBER 26 - CHRONIC NEUROMUSCULO-SKELETAL INJURY

I. Background:

- A. At times there may be recurrent or residual neuromusculo-skeletal symptoms that remain subsequent to completion of a treatment guideline but prior to a determination by the treating practitioner of maximum medical improvement (MMI). This guideline is meant to define the parameters of such care. It does **not** include patients with Chronic Pain Syndrome, for which there is a separate guideline.
- B. This guideline is meant to cover the majority of tests and treatments. It is expected that approximately 10% of cases will fall outside this guideline and require review on a case by case basis.

II. Inclusion Criteria:

- A. Injured-worker is back to work or is able to be gainfully employed (full or part-time, regular or modified)
- B. One of the following:
 - 1. Documented, measurable, functional impairment related to the employee's injury which potentially can be improved by a treatment program as outlined in this treatment guideline.
 - 2. Significant residual clinical findings that may result in consistent limitation of work-related activities or those functions essential to such activities.

III. Outpatient Treatment:

A. Allowed (Within scope of license):

- 1. Medical visits - **maximum 4 visits in 8 months from end point of other neuromusculo-skeletal guidelines**
- 2. Physical Therapy - **maximum 16 visits in 8 months from end point of other neuromusculo-skeletal guidelines**
- 3. Occupational Therapy - **maximum 16 visits in 8 months from end point of other neuromusculo-skeletal guidelines**
- 4. Chiropractic maximum - **16 visits in 8 months from end point of other neuromusculo-skeletal guidelines**
- 5. Physical agent and modalities (e.g. heat/cold, electrical stimulation, iontophoresis, phonophoresis, ultrasound, fluori-methane, cold laser) maximum of 2 allowed per treatment session.

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B. Not Allowed:

- 1. Inpatient Treatment**
2. Physical agents and modalities (e.g. heat/ cold, electrical stimulation, iontophoresis, phonophoresis, ultrasound, fluori-methane, cold laser) **are not allowed as the only treatment procedure.**
3. Home equipment (e.g. home whirlpools, hot tubs, special baths, special beds or mattresses, waterbed, recliner or lounge chairs, electro-sleep devices, electrical nerve (TENS) or muscle stimulators)
4. Duplication of any services for patients being treated by more than one discipline (physical therapy, occupational therapy, allopathic medicine and chiropractic).
5. Re-entry to this guideline for the same diagnosis.

IV. Discharge Plan:

- A. At the conclusion of this guideline, the patient should be considered at maximum medical improvement and rated according to the most current AMA Impairment Guide.
- B. Non-compliance with treatment program, as determined by the treating practitioner, will result in immediate termination from this guideline.
- C. An Office of Education and Vocational Rehabilitation referral form, signed by the treating practitioner and sent to the DIA - **required**

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GUIDELINE NUMBER 27 - CHRONIC PAIN SYNDROME

I. Background:

- A. Chronic Pain Syndrome represents a specific diagnosis which refers to that chronic pain which is out of proportion to what would be expected from the history and physical examination, and is associated with significant impairment in spite of apparent healing of underlying pathology. Common clinical manifestations include intensive utilization of medical services and physician prescribed drugs, persistent complaints of pain, symptoms of anxiety, depression and anger. Chronic Pain Syndrome may have a strong psycho-social component and thus the treatment should include psychological support.
- B. The purpose of an intensive short-term treatment program is behavioral management of chronic pain behaviors and reduction of physical impairments. The goal is to rehabilitate the injured worker so he or she can function as normally as possible in work related activities, or those functions essential to such activities, rather than to eliminate the pain.
- C. A diagnosis of Chronic Pain Syndrome, or a recommendation for chronic pain treatment, may be inappropriate when a patient has other conditions that may make treatment ineffective. **Treatment may be ineffective where a patient exhibits symptoms such as somatic delusions, opiate addiction and factitious disorders.**
- D. This guideline is meant to cover the majority of tests and treatments. It is expected that approximately 10% of cases will fall outside this guideline and require review on a case by case basis.

II. Inclusion Criteria (Must satisfy all):

- A. A diagnosis of Chronic Pain Syndrome by the treating Practitioner and either a finding that the patient is at maximum medical improvement (MMI) of the primary diagnosis, or a recommendation by the treating practitioner for a Chronic Pain Program either inpatient or outpatient.
- B. Chronic pain is out of proportion to what would be expected from the history and physical examination as determined by the treating practitioner.
- C. Chronic pain is associated with significant impairment in spite of apparent healing of underlying pathology as determined by the treating practitioner.
- D. One or more of the following: intensive utilization of medical services and drugs; persistent complaints of pain; symptoms of anxiety, depression and anger, or; other clinical manifestations of chronic pain.
- E. Any patient whose recovery exceeds the expected duration of treatment for the primary diagnosis without becoming eligible for another guideline (for example, a change in diagnosis).

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III. Inpatient or Outpatient Treatment:

A. Patients in this guideline should be considered to have received all appropriate and necessary care following either 3 weeks of inpatient treatment or 8 weeks of outpatient treatment.

B. Allowed (Within scope of license)

1. Evaluation of Chronic Pain Syndrome and development of a treatment plan by a multi-disciplinary treatment team, no member of which shall be a practitioner who has previously examined, ordered medical care for, rendered medical care to, or reviewed the medical records, of the injured employee - **required**
 - a. **Only one evaluation, as described, shall be allowed prior to treatment**
2. The treatment team shall include a licensed mental health professional (either a psychiatrist or psychologist) and no more than three of the following: physician, physical therapist, occupational therapist, or chiropractor. At least one member of the treatment team should be a clinician who by virtue of training or experience is especially qualified to evaluate and treat chronic pain patients - **required**
3. Assignment of a member from within the pain program/treatment team to coordinate clinical care (a Program Coordinator)- **required**
4. Within 7 calendar days of the initial evaluation for treatment under this guideline, a Patient Contract for, and an outline of a treatment plan - **required**
 - a. **Non-compliance with the Patient Contract, as determined by the Program Coordinator, will result in immediate termination from the treatment program and this guideline.**
5. Physical Capacity Evaluation
6. Work Conditioning or Work Hardening - **maximum of 20 visits, up to 4 hours/visit, based on treatment plan**
7. Return to work - **strongly encouraged**
8. Withdrawal program for addicting or habituating medication prescribed as a result of the primary work-related injury or illness - **required**
9. Psychotherapy-**maximum of 15 visits based on treatment plan**
10. Physical Therapy- **maximum 20 visits based on treatment plan**
11. Occupational Therapy- **maximum 20 visits based on treatment plan**
12. Chiropractic - **maximum 20 visits based on treatment plan**
13. Physical agents and modalities (e.g.heat/cold, electrical stimulation, iontophoresis, phonophoresis, ultrasound, flouri-methane, cold laser) - **maximum of 2 allowed per treatment session.**

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C. Not Allowed

1. Physical agents and modalities (e.g. heat/cold, electrical stimulation, iontophoresis, phonophoresis, ultrasound, fluorimethane, cold laser) -not allowed as the only treatment procedure.
2. Home equipment (e.g. home whirlpool, hot tub, special beds or mattresses, waterbeds, recliner or lounge chairs, electro-sleep devices, electrical nerve (TENS) or muscle stimulators).
3. Duplication of any services for patients being treated by more than one discipline (physical therapy, occupational therapy, allopathic medicine and chiropractic).

IV. Discharge Plan:

- A. Summary report done by the treatment team, including determination of work capacity, maximum medical improvement, and permanent impairment using the most current edition of AMA Impairment Guide - required.
- B. An Office of Education and Vocational Rehabilitation referral form, signed by the Program Coordinator and sent to the DIA- required

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**GUIDELINE NUMBER 28 - DIAGNOSIS AND INITIAL TREATMENT OF
OCCUPATIONAL ASTHMA**

I. Background:

- A. Asthma is an airways disease of the lungs characterized by the following: 1) airway inflammation; 2) increased airway responsiveness to a variety of stimuli; and 3) airway obstruction that is partially or completely reversible, either spontaneously or with treatment. The two essential *clinical* elements for the diagnosis of asthma are airways obstruction which is partially or totally reversible with treatment, and/or airways hyperreactivity. *Occupational asthma* is asthma that has its onset in association with workplace exposure(s). *Occupationally - aggravated asthma* is asthma that is aggravated by workplace exposure(s).
- B. Causative agents are classified as sensitizers (including but not limited to the appended list) or irritants. Sensitizers cause inflammation through one or more immunologic mechanisms, whereas irritants directly inflame the airway. Occupational environments are often complex, and it may be difficult to identify a single specific causal agent.
- C. A delay in diagnosis resulting in continued exposure of the worker to even minute amounts of sensitizers can lead to permanent and irreversible airways disease, or *death*.
- D. An acute high level inhalation exposure to an irritant may result in a permanent asthmatic condition known as Reactive Airways Dysfunction Syndrome (RADS).
- E. This guideline is meant to cover the majority of tests and treatments that may be used to diagnose and initially stabilize occupational and occupationally-aggravated asthma. **This guideline does not include parameters of care for long term management of either occupational or occupationally-aggravated asthma.** It is expected that approximately 10% of cases will fall outside this guideline and require review on a case by case basis.

II. Criteria for Diagnosis:

A. Diagnosis of Occupational Asthma:

- 1. Diagnosis of asthma within these guidelines by a medical doctor, using the appended algorithm.
 - 2. Historical association between the onset of asthma and work,
- AND**
- 3. At least one of the following criteria:
 - a. Documentation (see Occupational History, Section III.B.) of workplace exposure to a category of agents or processes associated with asthma;
 - b. Work-related change in FEV1 or in peak expiratory flow (PEF);
 - c. Onset of respiratory signs and/or symptoms within hours after an acute high level occupational inhalation exposure to an irritant (RADS)

- B. **Diagnosis of Occupationally-Aggravated Asthma:** There must be a history of asthma prior to the occupational exposure in question. Other diagnostic criteria are the same as for new onset occupational asthma.

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III. Medical Diagnosis and Initial Stabilization:

- A. Maximum of 8 Physician Visits Allowed.** The number of physician visits needed to diagnose and stabilize cases of occupational and occupationally-aggravated asthma is likely to vary from patient to patient. Physicians must use their judgement to determine the number of physician visits necessary for diagnosis and initial stabilization, *not to exceed a total of 8 physician visits for the duration of this guideline.*

IV. Establishing The Diagnosis:

A. Medical History:

1. Characteristic symptoms: wheeze, cough, chest tightness, shortness of breath.
2. Past respiratory history: prior diagnosis of asthma, allergies, eczema, rhinitis, bronchitis, sinusitis, hayfever, chest colds, and respiratory symptoms upon exertion, exposure to minor irritants, or exposure to cold air.
3. Review of systems: history of other diseases with symptoms that could mimic or precipitate asthma: e.g. cardiovascular disease with left ventricular dysfunction; gastroesophageal reflux.
4. Family history: asthma, atopy.
5. Smoking history: average # packs of cigarettes per day x # years smoked (pack years of smoking).
6. List of current medications.
7. Home, hobby, and environmental exposure history to exclude other causal or contributing factors.

B. Occupational History:

1. Description of the patient's work tasks, exposures and related processes, both past and present.
2. Effect(s) of workplace exposures on respiratory symptoms, with emphasis on temporal associations. Note whether symptoms change on weekends and/or vacation.
3. Documentation of workplace exposures where possible: e.g., Material Safety Data Sheets (MSDS); employer records; industrial hygiene monitoring data from government agencies or private consultants.
4. Where data for characterizing exposures is inadequate, worksite evaluation by an appropriate health care provider or industrial hygienist may be necessary and is encouraged.

C. Physical Examination:

1. Examination of head for rhinitis, nasal polyps, conjunctivitis, and sinusitis.
2. Chest percussion and auscultation.
3. Cardiovascular exam to rule out cardiogenic explanation for respiratory symptoms.
4. Skin exam for atopic dermatitis.

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D. Diagnostic Tests Allowed:

- 1. A total of 11 spirometry studies is allowed.** For purposes of this guideline, each *study* shall consist of a minimum of **3** and a maximum of **8 maneuvers**, with at least the initial study performed pre- and post-inhaled bronchodilator.
 - a. Up to **2** follow-up spirometry studies will be allowed to establish a diagnosis of asthma.
 - b. Up to **8** pre- and post-shift spirometry studies will be allowed at the beginning and end of each work week for 2 weeks.
 - c. Tests of Peak Expiratory Flow (PEF) should be done by the patient 4 to 5 times per day, 7 days per week, for 2 to 4 weeks, and a PEF Diary should be kept recording the best of at least 3 PEF maneuver readings for each PEF test time. These PEF tests should be done at the same times each day (including non-work days) e.g: upon arising, mid-workday, at the end of the workday, and 6-8 hours after leaving work.
 - d. When PEF diary and spirometric monitoring are equivocal, a longer absence from work may be needed to establish or rule out the diagnosis, with
 - (i) **1 repeat spirometry study allowed** at the **beginning of the absence from work** and **1 repeat spirometry study allowed** at the **end of the absence from work** and,
 - (ii) the PEF diary monitoring repeated.
- 2. One Non-Specific Inhalation Challenge Test allowed:**
If there is no significant improvement in FEV1 in response to inhaled bronchodilator, and *if* the existence of airways hyperreactivity remains in question (see appended algorithm), but only when:
 - a. Performed in a **Hospital-based Outpatient Setting**,
 - b. consistent with this guideline's **Appended Algorithm**, and
 - c. **Under Supervision** of a medical doctor experienced in this type of procedure.
- 3. In rare cases, it may be necessary to perform a *Specific Inhalation Challenge Test* and/or *Specific Skin Testing* with the suspected occupational agent(s) to make a diagnosis of occupational asthma and institute appropriate treatment.**
- 4. 1 Specific Inhalation Challenge Test and/or up to 10 Specific Skin Tests with relevant antigens allowed, but only when:**
 - a. Performed by a **Medical Doctor Experienced in this type of Procedure** and,
 - b. in a **Hospital-based Outpatient Setting**.

WARNING: SPECIFIC INHALATION CHALLENGE AND SKIN TESTS ARE NON-EMERGENT PROCEDURES, WITH SIGNIFICANT RISK OF SEVERE REACTION, INCLUDING DEATH.

- 5. Chest radiograph - 1 postero-anterior and 1 lateral view allowed.**
- 6. Latex and laboratory animal dander RAST test(s) for specific work-related exposure - 1 allowed for each antigen.**

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V. Initial Treatment Program:

A. Prevention of further exposure to causal or precipitating agent(s):

1. When caused by a **sensitizing agent**, all further exposure to the causal agent must be eliminated because of the increased risk for irreversible airways obstruction, severe bronchospasm and/or *death*. A statement of the physician's discussion of these and other risks with the patient must be documented in the medical record.
2. When caused by an **irritant**, elimination of exposure is desirable but significant reduction of exposure may be sufficient. When elimination of exposure is not possible, alternative approaches may include, in order of preference:
 - a. Engineering controls such as local exhaust ventilation
 - b. Appropriate use of respiratory protection provided by the employer

B. Where these approaches fail and the clinical condition warrants, removal of the worker from the workplace may be necessary.

C. Medications:

1. Medications should only be used in conjunction with prevention of further exposure as outlined in section V.A. above.
2. **Spirometric testing is allowed as needed to monitor effectiveness of therapy, not to exceed the maximum of 11 spirometry studies** allowed in section IV.D. above. Due to its unique nature, Occupational Asthma often requires a more aggressive therapeutic approach than Non-Occupational Asthma. The recommended therapeutic approach is as follows:
 - a. Step 1: Rapid-onset β -agonist as needed for control of symptoms of asthma occurring less than three times per week. If this fails, then:
 - b. Step 2: Inhaled low-to-medium dose corticosteroids to treat underlying inflammation, combined with a rapid-onset inhaled β -agonist as needed to control symptoms of asthma. If this fails, then:
 - c. Step 3: Increase inhaled corticosteroids to high dose, plus long-acting inhaled β -agonist, and /or oral β -agonist and/or theophylline with continued use of rapid-onset inhaled β -agonist as needed to control symptoms of asthma. If this fails, then:
 - d. Step 4: Add an oral corticosteroid.

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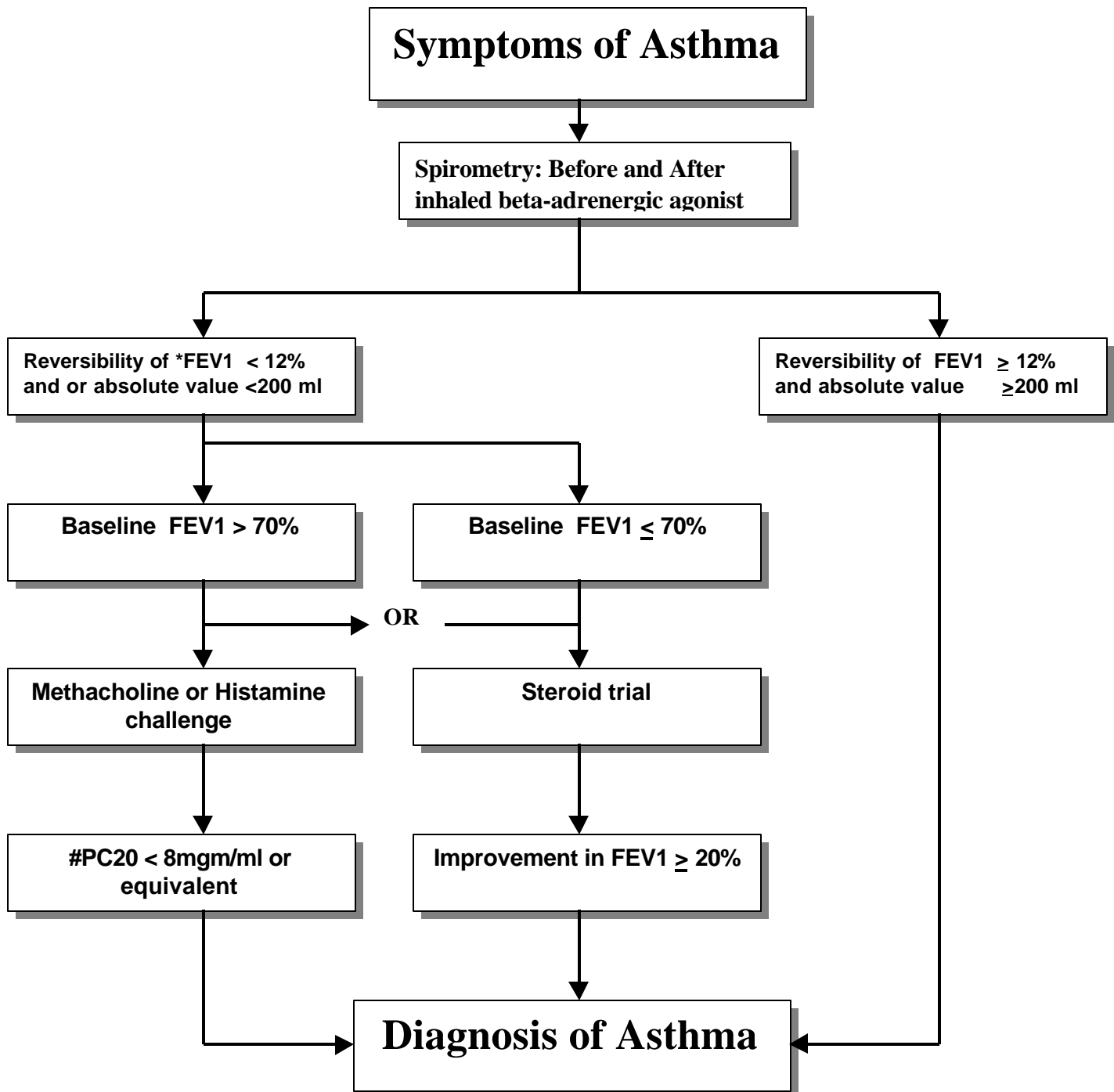
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- D. Patient Education** (The following shall be discussed with the patient at the initial physician visit and repeated thereafter as necessary):
1. Key points about signs and symptoms of asthma and characteristic airway changes in asthma.
 2. Asthma triggers and how to avoid them.
 3. How medications work and their potential adverse effects; instruction and demonstration in the correct use of all medications (e.g. proper use of MDI's)
 4. Techniques of monitoring status of asthma, such as PEF readings.
 5. Indications for emergency care.

VI. Discharge Plan:

- A.** Future medical care will depend upon the outcome of initial medical management. This guideline is meant to address only the diagnosis and initial stabilization of occupational and occupationally-aggravated asthma.
- B.** If causal or aggravating exposure is eliminated or reduced and asthma symptoms resolve without medication, no further medical management is needed. If symptoms have resolved with medication, a period of medical follow-up will be needed to determine the necessity for continued medication and to establish an effective maintenance regimen. Practitioners should consult other guidelines, practice parameters and/or standards of care for guidance in the long term management of persistent symptoms of asthma.

DIAGNOSIS OF ASTHMA ALGORITHM



* FEV1 = Forced Expiratory Volume in one second
PC20 = Provocative concentration to cause a 20% decline in FEV1

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**OCCUPATIONAL ASTHMA CAUSING AGENTS:
*List of Known Sensitizers as of 6/5/97****

Organic Chemicals

Acrylates

Methyl methacrylate, cyanoacrylates
Ethylcyanoacrylate ester
Plexiglass

Alcohols

Furfuryl alcohol (furan based resin)
Alkylaral polyether alcohol, polypropylene glycol
(combination)

Aldehydes

Formaldehyde
Glutaraldehyde
Urea formaldehyde

Aliphatic Amines:

Ethylene diamine
Hexamethylene tetramine
Triethylene tetramine

Aliphatic Amines:

Ethanolamines

Monoethanolamine
Aminoethylethanolamine
Dimethylethanolamine

Anhydrides

Phthalic anhydride
Trimellitic anhydride
Tetrachlorophthalic anhydride
Pyromellitic dianhydride
Methyl tetrahydrophthalic anhydride
Himic anhydride

Amines, Aliphatic: Other

3-(Dimethylamino)-propylamine

Amines, Heterocyclic

Piperazine hydrochloride
N-methylmorpholine

Amines: Other

Chloramine T

Aromatic Hydrocarbons, NOS

Styrene

Azo Compounds

Azodicarbonamide
Diazonium salt
Azobisformamide

Chlorinated Compounds

Chlorhexidine

Fluorinated Compounds

Freon

Isocyanates

Toluene Diisocyanate
Diphenylmethane diisocyanate
1,5 Naphthylene diisocyanate
Isophorone diisocyanate
TDI, MDI, HDI, PPI (combination)
TDI, MDI, HDI (combination)
TDI, MDI (combination)

Phenols

Hexachlorophene

Polymers

Latex, synthetic
Polyvinyl chloride (fumes or powder)

Sulphonates

Iso-nonanyl oxybenzene sulphonate

Inorganic Chemicals

Metals

Aluminum
Chromium and Nickel (combination)
Cobalt and Nickel

Platinum
Nickel
Zinc fumes
Tungsten carbide
Chromium

Nonmetallic Elements

Fluorine

Miscellaneous Chemicals

Pharmaceuticals

Penicillins and Ampicillin
Penicillamine
Cephalosporins
Phenylglycine acid chloride
Psyllium
Methyl dopa
Spiramycin
Salbutamol intermediate
Amprolium
Tetracycline
Isonicotinic acid hydrazide
Hydralazine
Tylosin tartrate
Ipecacuanha
Cimetidine
Rose Hips

Dyes

Levafix brilliant yellow E36
Drimaren brilliant yellow K-3GL
Cibachrome brilliant scarlet 32
Drimaren brilliant blue K-BL
Persulphate salts and henna
Reactive dyes

Fluxes

Colophony
Zinc chloride, ammonium chloride (mixture)
Alkylaral polyether alcohol, polypropylene glycol
(combination)
Pyrene glycol

Miscellaneous Chemicals, NOS

Tetraxene
Oil mist

Biological Agents

Animal/Animal Materials

Laboratory animal
Egg protein (Egg producers)
Chicken
Pig
Frog
Lactoserum
Casein (cow's milk)
Bat guano

Fish/Fish Materials

Crab
Prawn
Hoya
Cuttle-fish
Trout
Shrimpmeal
Fish-feed, Echinodorus lava
Red soft coral

Insect/Insect Materials

Grain mite
Locust
Screw Worm Fly
Cricket
Bee moth
Moth
Butterfly

Mexican bean weevil
Fruit fly
Honeybee
L. Caesar larvae
Lesser mealworm, (Grain and poultry workers)
Fowl mite, (Poultry workers)
Barn mite, (Farmers)
Parasites (Flour Handlers)
Mites, (Flour Handlers)
Acarian, (Apple Growers)
Daphnia, (Fish food store)
Weeping Fig, (Plant Keepers)
Sheep Blowfly, (Technicians)

Biological Agents, con't

Larva of Silkworm

Plants/Plant Material

Grain dust
Wheat, Rye
Soya Flour
Lathyrus sativus
Vicia sativa
Buckwheat
Gluten
Coffee bean
Caster bean
Tea
Herbal Tea
Tobacco Leaf
Hops
Baby's Breath
Freesia
Paprika
Mushroom
Cocoon seed
Chicory
Sunflower
Garlic dust
Lycopodium
Sericin
Nacre dust
Henna

Vegetable Gums

Gum, Acacia
Gum, Tragacanth
Gum, Guar
Latex, natural rubber

Wood Dust or Bark

Western red cedar, (Thuja plicata)
California redwood, (Sequoia sempervirens)
Cedar of Lebanon, (Cedra Libani)
Cocabolla, (Dalbergia retusa)
Iroko, (Chlorophora excelsa)
Oak, (Quercus robur)
Mahogany, (Shorea Sp)
Abiruaia, (Pouteria)
African Maple, (Triplochiton scleroxylon)
Tanganyika aningre
Central American Walnut, (Juglans olanchana)
Kejaat, (Pterocarpus angolensis)
African zebrawood, (Microberlinia)
Ramin, (Gonystylus bancanus)
Quillaja bark
Fernambouc, (Caesalpinia echinata)
Ashwood, (Fraxinus americana)
Eastern red cedar, (Thuja occidentalis)
Ebony wood, (Disospyros crassiflora)
Kotibe wood, (Nesorgordonia papverifera)
Cinnamon, (Cinnamomum Zeylanicum)

Biologic Enzymes

B.subtilis
Trypsin
Papain

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Pepsin
Panceatin
Flaviastase
Bromelin
Fungal amylase
Fungal amyloglucosidade
Fungal hemicellulase
Esperase

*Adapted from: Chan-Yeung M. Malo JL, Aetiological
Agents in Occupational Asthma. European Respiratory
Journal. 1994. Vol.7. pp.346-371.

*** FEV1 = Forced Expiratory Volume in one second**
PC20 = Provocative concentration to cause a 20% decline in FEV1